CLAIMS:

1.   A polypeptide conjugate comprising:

    (a)   a target recognition segment comprising a Natural Killer cell receptor (NCR) or an active fragment thereof, wherein the NCR is selected from the group consisting of: NKp30 or a functional fragment thereof that binds to a cellular ligand expressed on the surface of a target tumor cell; and

        (b) a second segment comprising an active agent capable of exerting a cytotoxic effect on the target cell.

2.   The conjugate according to claim 1, wherein the active agent is selected from the group consisting of: a cytotoxic agent, an immunoglobulin (Ig) molecule and a fragment thereof.

3.   The conjugate according to claim 2, wherein the active agent is the Fc fragment of the immunoglobulin molecule.

4.   The conjugate according to claim 3, wherein the conjugate comprises NKp30 covalently attached to the Fc fragment of an Ig molecule.

5.   The conjugate according to claim 4, having the amino acid sequence as set forth in SEQ ID NO:4 or functional fragments thereof.

6.   An isolated polynucleotide encoding a polypeptide conjugate, the conjugate comprises:

    (a)   a target recognition segment comprising a Natural Killer cell receptor (NCR) or an active fragment thereof, wherein the NCR is selected from the group consisting of: NKp30 or a functional fragment thereof that binds to a cellular ligand expressed on the surface of a target tumor cell; and

        (b) a second segment comprising an active agent capable of exerting a cytotoxic effect on the target cell.

7.   The isolated polynucleotide according to claim 6, wherein the active agent is selected from the group consisting of: a cytotoxic agent, an Ig molecule and a fragment thereof.

8.   The isolated polynucleotide according to claim 7, wherein the active agent is the Fc fragment of the immunoglobulin molecule.

9.   The isolated polynucleotide according to claim 6, wherein the conjugate comprises NKp30 covalently attached to the Fc fragment of an Ig molecule.

10.   The isolated polynucleotide according to claim 6, encoding the polypeptide sequence of SEQ ID NO:4.

11. The isolated polynucleotide according to claim 6, comprising SEQ ID NO:11 or fragments thereof.

12. A vector comprising the polynucleotide of any one of claims 6 to 11.

13. The vector according to claim 12, further comprising a regulatory element operably linked to said polynucleotide, the regulatory element is selected from the group consisting of: promoter, initiation codon, stop codon, polyadenylation signal, enhancer and selection marker.

14. The vector according to claim 12, wherein the vector is a plasmid or a virus.

15. The vector according to claim 14, wherein the vector is a virus selected from the group consisting of: adenoviruses, retroviruses and lentiviruses.

16. A host cell comprising the vector of any one of claims 12 to 15.

17. A host cell capable of expressing the polypeptide conjugate any one of claims 1 to 5.

18. The host cell according to any one of claims 16-17, wherein the cell is eukaryotic or prokaryotic.

19. A pharmaceutical composition comprising as an active ingredient a polypeptide conjugate comprising:

(a) a target recognition segment comprising an NCR or an active fragment thereof, the NCR selected from the group consisting of: NKp30, or a functional fragment thereof, that binds to a cellular ligand expressed on the surface of a target tumor cell; and

(b) a second segment comprising an active agent that promotes the lysis of the target tumor cell; and

(c) a pharmaceutically acceptable carrier, stabilizer or diluent.

20. The pharmaceutical composition according to claim 19, wherein the active agent is selected from the group consisting of a cytotoxic agent, an immunoglobulin (Ig) molecule, and a fragment thereof.

21. The pharmaceutical composition according to claim 20, wherein the active agent is the Fc fragment of the immunoglobulin molecule.

22. The pharmaceutical composition according to claim 19, wherein the conjugate comprises NKp30 covalently attached to the Fc fragment of an Ig molecule.

23. The pharmaceutical composition according to claim 22, wherein the conjugate comprises the amino acid sequence as set forth in SEQ ID NO:4.

24.   A method for treating a neoplastic disease in a subject in need thereof comprising administering to the subject a therapeutically effective amount of a conjugate comprising:

(a)   a target recognition segment comprising a Natural Killer cell receptor (NCR) or an active fragment thereof, the NCR is selected from the group consisting of: NKp46, NKp44, NKp30 or a functional fragment thereof that binds to a cellular ligand expressed on the surface of a target tumor cell; and

(b)   a second segment comprising an active agent, the active agent capable of exerting a cytotoxic effect on said target cell,

the conjugate being capable of eliminating or inhibiting the growth of the tumor cells associated with the disease, thereby treating the disease.

25.   The method according to claim 24, wherein the conjugate is according to any one of claims 1-5.

26.   The method according to claim 25, wherein the malignant disease is any neoplastic disease is associated with a solid tumor or a non-solid tumor.

27.   The method according to any one of claims 24 to 26, wherein the active agent is selected from the group consisting of: chemotherapeutic agents, radioisotopes, cytotoxins.

28.   A method of inhibiting the growth of a tumor in a subject in need thereof comprising administering to the subject a therapeutically effective amount of a polypeptide conjugate comprising:

(a)   a target recognition segment comprising an NCR or an active fragment thereof, wherein said NCR is selected from the group consisting of: NKp46, NKp44, NKp30 or a functional fragment thereof that binds to a cellular ligand expressed on the surface of a target tumor cell; and

(b)   an active segment comprising an active substance that promotes the lysis of the target tumor cell, thereby inhibiting the growth of the tumor in said subject.

29.   The method according to claim 28, wherein the conjugate is according to any one of claims 1-5.

30.   The method according to claim 29, wherein the tumor is a solid tumor or a non-solid tumor.

31.   The method according to any one of claims 28 to 30, wherein the active agent is selected from the group consisting of: chemotherapeutic agents, radioisotopes, cytotoxins.

32.   The method according to claim 30, wherein the solid tumor is selected from the group consisting of: carcinoma, squamous cell carcinomas, adenocarcinomas, small cell carcinomas, melanomas, gliomas and neuroblastomas.

33.   The method according to claim 30, wherein the non-solid tumor is selected from the group consisting of: B cell Lymphoma, T cell Lymphoma and Leukemia.

34.   The method according to claim 31, wherein the cytotoxin is a plant-, a fungus- or a bacteria-derived toxin.

35.   The method according to any one of claims 24 to 34, wherein the subject is a human subject.

36.   A method of delivering a cytotoxic substance to a target tumor cell in a subject comprising administering to the subject a polypeptide conjugate comprising:

    a. a target recognition segment comprising an NCR or an active fragment thereof, the wherein said NCR is selected from the group consisting of: NKp46, NKp44, NKp30 or a functional fragment thereof that binds to a cellular ligand expressed on the surface of a target tumor cell; and

    b. an active segment comprising the cytotoxic substance,

        wherein the binding of the conjugate to the cellular ligand promotes the internalization of said conjugate within said target tumor cell, thereby delivering said cytotoxic substance to said target tumor cell.

37.   The method according to claim 36, wherein the conjugate is according to any one of claims 1-5.

38.   The method according to any one of claims 36-37, wherein the tumor is a solid tumor or a non-solid tumor.

39.   The method according to any one of claims 36 to 38, wherein the cytotoxic substance is selected from the group consisting of: chemotherapeutic agents, radioisotopes, cytotoxins.

40.   The method according to claim 38, wherein the solid tumor is selected from the group consisting of: carcinoma, squamous cell carcinomas, adenocarcinomas, small cell carcinomas, melanomas, gliomas and neuroblastomas.

41.   The method according to claim 38, wherein the non-solid tumor is selected from the group consisting of: B cell Lymphoma, T cell Lymphoma and Leukemia.

42. The method according to claim 39, wherein the cytotoxin is a plant-, a fungus- or
   a bacteria-derived toxin.

43. The method according to any one of claims 24, 28 or 36 wherein the conjugate is
   a polypeptide having the sequence set forth in SEQ ID NOS: 1-3.

5 44. The method according to any one of claims 24, 28 or 36 wherein the conjugate is
   a polypeptide having the sequence set forth in SEQ ID NOS: 5-7.